

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

Claims 1-12 (canceled).

Claims 13-16 (canceled).

17. (previously presented) A transmitter for transmitting an intermittent sequence of messages to maintain synchronization between the transmitter and at least one receiver, comprising:

control means arranged to provide messages for transmission, each of said messages forming part of said sequence of messages and comprising control information for effecting synchronization, including timing information, wherein said timing information is dependent upon when the transmission of a following message in the sequence occurs; and

transmission means, responsive to said control means, for transmitting each of said messages,

wherein said sequence of messages comprises a sequence of groups of messages each of said groups of messages comprising a plurality of messages in series,

wherein said following message is a message in a following group,

wherein said following group is the next group, and

wherein said control means is arranged to vary the time between the transmission of a pair of successive groups of messages by an amount such that there is coincidence between the time of transmission of a message in the following group of the pair and the expected time of transmission, in the absence of a variation, of a message in the following group.

Claims 18-38 (canceled).

39. (previously presented) A receiver for synchronizing with a sequence of transmitted messages each comprising control information including timing information, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to the control information in a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the timing information in said received message and to enable said receiver and synchronization means to receive a following message in the sequence, and

wherein said control means is arranged to compare the expected time of arrival of a message, provided by the timing information in a preceding received

message, with the actual time of arrival of the message as indicated to the control means by the reception and synchronization means, and to offset said time reference provided by the clock in dependence on said comparison.

Claims 40-59 (canceled).

60. (previously presented) A receiver for synchronizing with a sequence of transmitted messages each comprising control information including timing information, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of said transmitted messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive to the control information in a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the timing information in said received message, said period of time being such that power conservation is disabled to receive a following message in the sequence, and

wherein said control means is arranged to compare the expected time of arrival of a message, provided by the timing information in a preceding received message, with the actual time of arrival of the message as indicated to the control means by the reception and synchronization means, and to offset said time reference provided by the clock in dependence on said comparison.

Claims 61-67 (canceled).

68. (previously presented) A transmitter, for transmitting a sequence of intermittent messages to maintain synchronization between the transmitter and at least one receiver, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and including of a plurality of messages in series, each of the plurality of messages in a group being separated from an adjacent message in that group by a second period of time, said transmitter comprising:

control means arranged to provide control messages for transmission which inform the at least one receiver of a variation in said sequence of intermittent messages, each of said control messages forming part of said sequence of intermittent messages and including control information for effecting synchronization after said variation, including parameters for informing variation in any one or more of the first period of time, the second period of time and the number of messages in a group; and

transmission means, responsive to said control means, for transmitting each of said intermittent messages,

wherein a control message has a payload including a first parameter specifying the first period of time after variation, a second parameter specifying the second period of time after variation and a third parameter specifying the number of messages in a group after variation.

Claims 69-73 (canceled).

74. (previously presented) A transmitter for transmitting an intermittent sequence of messages each of which is capable of synchronizing a clock in a receiver to a clock in the transmitter, wherein said sequential messages are in groups, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each of the plurality of messages in a group being separated from an adjacent message in that group by a second period of time, comprising:

transmission means for transmitting each of said sequential messages; and

control means arranged to provide, when there is a variation in the sequence of messages, control information, for transmission in at least one sequential message, that informs the at least one receiver of a variation in the sequence of messages, and thereby maintains, after the variation, the synchronization of the clock in the receiver to the clock in the transmitter, the control information including one or more parameters for informing a variation in one or more of the first period of time, the second period of time and the number of messages in a group,

wherein a control message has a payload comprising a first parameter specifying the first period of time after variation, a second parameter specifying the second period of time after variation and a third parameter specifying the number of messages in a group after variation.

75 - 78. Cancelled

79. (currently amended) A transmitter as claimed in claim ~~78~~120, wherein for said first and second groups, said series of messages within each of said pair of groups are separated by equal second time periods.

80. (previously presented) A transmitter for transmitting an intermittent sequence of messages each of which is capable of synchronizing a clock in a receiver to a clock in the transmitter, wherein said sequential messages are in groups, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each of the plurality of messages in a group being separated from an adjacent message in that group by a second period of time, comprising:

transmission means for transmitting each of said sequential messages; and
control means arranged to provide, when there is a variation in the sequence of messages, control information, for transmission in at least one sequential message, that informs the at least one receiver of a variation in the sequence of messages, and thereby maintains, after the variation, the synchronization of the clock in the receiver to the clock in the transmitter, the control information including one or more parameters for informing a variation in one or more of the first period of time, the second period of time and the number of messages in a group,

wherein the messages in the intermittent sequence of messages comprise control messages that vary the sequence of intermittent messages and data

messages having a payload containing data that do not vary the sequence of intermittent messages.

81. (previously presented) A transmitter as claimed in claim 80, wherein each group of messages including a control message, only contains control messages.

82. Cancelled

83. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the intermittent sequence, and any variation thereof, and to enable said receiver and synchronization means to receive a message in each of the groups in the sequence.

84. (previously presented) A receiver as claimed in claim 83, wherein the variation in the sequence of intermittent messages is communicated to the receiver by the reception of a control message as one of the intermittent sequence of messages, said control message including parameters for informing variation in any one or more of the first period of time, the second period of time and the number of messages in a group.

85. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the intermittent sequence, and any variation thereof, and to enable said receiver and synchronization means to receive a message in each of the groups in the sequence,

wherein a control message has a payload comprising a first parameter specifying the first period of time after variation, a second parameter specifying the second period of time after variation and a third parameter specifying the number of messages in a group after variation and said receiver extracts said parameter values therefrom.

86. (previously presented) A receiver as claimed in claim 83, wherein the messages in the intermittent sequence of messages comprises control messages which vary the sequence of intermittent message and data messages having a payload containing data which do not vary the sequence of intermittent messages.

87. (previously presented) A receiver as claimed in any one of claims 83, arranged, while in Park Mode, to receive a wake up message for waking the receiver from Park Mode to receive a page message at a subsequent time wherein the wake up message is one of the intermittent sequence of messages.

88. (previously presented) A receiver as claimed in claim 83, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration.

89. (previously presented) A receiver as claimed in claim 88, wherein said control means in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message.

90. (previously presented) A receiver as claimed in claim 83, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration and in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message in the same group.

91. (previously presented) A receiver as claimed in claim 83, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration and in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message in the following group.

92. (previously presented) A receiver as claimed in claim 91, wherein said control means re-enablement is intermittent, the interval between enablement depending upon the second time period for the group.

93. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the intermittent sequence, and any variation thereof, and to enable said receiver and synchronization means to receive a message in each of the groups in the sequence,

wherein said control means is arranged to compare the expected time of arrival of a message with the actual time of arrival of the message as indicated to the

control means by the reception and synchronization means, and to offset a time reference provided by the clock in dependence on said comparison.

94. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on the intermittent sequence as updated by received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the intermittent sequence, and any variation thereof, said period of time being such that power conservation is disabled to receive a message in each of the groups of the sequence.

95. (previously presented) A receiver as claimed in claim 94, wherein the variation in the sequence of intermittent messages is communicated to the receiver by the reception of a control message as one of the intermittent sequence of messages, said control message including parameters for informing variation in any one or more of the first period of time, the second period of time and the number of messages in a group.

96. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on the intermittent sequence as updated by received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the intermittent sequence, and any

variation thereof, said period of time being such that power conservation is disabled to receive a message in each of the groups of the sequence,

wherein a control message has a payload comprising a first parameter specifying the first period of time after variation, a second parameter specifying the second period of time after variation and a third parameter specifying the number of messages in a group after variation and said receiver extracts said parameter values therefrom.

97. (previously presented) A receiver as claimed in claim 94, wherein the messages in the intermittent sequence of messages comprises control messages which vary the sequence of intermittent message and data messages having a payload containing data which do not vary the sequence of intermittent messages.

98. (previously presented) A receiver as claimed in claim 94, arranged, while in Park Mode, to receive a wake up message for waking the receiver from Park Mode to receive a page message at a subsequent time wherein the wake up message is one of the intermittent sequence of messages.

99. (previously presented) A receiver as claimed in claim 94, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration.

100. (previously presented) A receiver as claimed in claim 99, wherein said control in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message.

101. (previously presented) A receiver as claimed in claim 94, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration and in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message in the same group.

102. (previously presented) A receiver as claimed in claim 94, wherein said control means enables said receiver and synchronization means, to receive a message in the sequence, for a predetermined duration and in the absence of an indication from the receiving and synchronizing means that a due message has been received, re-enables said receiver and synchronization means to receive a following message in the following group.

103. (previously presented) A receiver as claimed in claim 102, wherein said control means re-enablement is intermittent, the interval between enablement depending upon the second time period for the group.

104. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of messages, transmitted by a transmitter, wherein said sequence of intermittent messages are in groups of messages, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each message in a group being separated from an adjacent message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on the intermittent sequence as updated by received ones of the transmitted intermittent sequence of messages comprising control information indicative of a variation in the sequence of intermittent messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received message to indicate to the control means the reception of said message,

wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the intermittent sequence, and any variation thereof, said period of time being such that power conservation is disabled to receive a message in each of the groups of the sequence,

wherein said control means is arranged to compare the expected time of arrival of a message with the actual time of arrival of the message as indicated to the control means by the reception and synchronization means, and to offset a time reference provided by the clock in dependence on said comparison.

105. (previously presented) A computer comprising a receiver as claimed in claim 83.

106. (previously presented) A computer comprising a receiver as claimed in claim 94.

107. Cancelled.

108. (previously presented) A mobile telephone comprising a receiver as claimed in claim 83.

109. (previously presented) A mobile telephone comprising a receiver as claimed in claim 94.

110 (currently amended) A mobile telephone comprising a transmitter as claimed in claim-74120.

111. (previously presented) An accessory for a mobile telephone comprising a receiver as claimed in claim 83.

112. (previously presented) An accessory for a mobile telephone comprising a receiver as claimed in claim 94.

113. (currently amended) An accessory for a mobile telephone comprising a transmitter as claimed in claim ~~74~~120.

114. (previously presented) A receiver, for synchronizing its clock substantially every first period of time via an intermittent sequence of broadcast synchronization messages, transmitted by a transmitter, for synchronizing a clock in the receiver to a clock in the transmitter, wherein said sequence of intermittent synchronization messages are in groups of synchronization messages, each group being separated from the next group by a first period of time and comprising a plurality of synchronization messages in series, each synchronization message in a group being separated from an adjacent synchronization message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted intermittent sequence of synchronization messages comprising control information indicative of a variation in the sequence of intermittent synchronization messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received synchronization message to indicate to the control means the reception of said synchronization message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the intermittent sequence, and any variation thereof, and to enable said receiver and

synchronization means to receive a synchronization message in each of the groups in the sequence.

115. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of broadcast synchronization messages, transmitted by a transmitter, for synchronizing a clock in the receiver to a clock in the transmitter, wherein said sequence of intermittent synchronization messages are in groups of synchronization messages, each group being separated from the next group by a first period of time and comprising a plurality of synchronization messages in series, each synchronization message in a group being separated from an adjacent synchronization message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on received ones of the transmitted intermittent sequence of synchronization messages comprising control information indicative of a variation in the sequence of intermittent synchronization messages;

a clock for providing a time reference to the control means; and

receiver and synchronization means responsive, when enabled, to a received synchronization message to indicate to the control means the reception of said synchronization message,

wherein said control means is arranged to disable said receiver and synchronization means for a period of time dependent upon the intermittent sequence, and any variation thereof, and to enable said receiver and

synchronization means to receive a synchronization message in each of the groups in the sequence,

wherein said control means is arranged to compare the expected time of arrival of a message with the actual time of arrival of the message as indicated to the control means by the reception and synchronization means, and to offset a time reference provided by the clock in dependence on said comparison.

116. (previously presented) An accessory for a mobile communications device comprising a receiver as claimed in claim 114.

117. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of broadcast synchronization messages, transmitted by a transmitter, for synchronizing a clock in the receiver to a clock in the transmitter, wherein said sequence of intermittent synchronization messages are in groups of synchronization messages, each group being separated from the next group by a first period of time and comprising a plurality of synchronization messages in series, each synchronization message in a group being separated from an adjacent synchronization message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on the intermittent sequence as updated by received ones of the transmitted intermittent sequence of synchronization messages comprising control information indicative of a variation in the sequence of intermittent synchronization messages;

a clock for providing a time reference to the control means; and receiver and synchronization means responsive, when enabled, to a received synchronization message to indicate to the control means the reception of said synchronization message, wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the intermittent sequence, and any variation thereof, said period of time being such that power conservation is disabled to receive a synchronization message in each of the groups of the sequence.

118. (previously presented) A receiver for synchronizing its clock substantially every first period of time via an intermittent sequence of broadcast synchronization messages, transmitted by a transmitter, for synchronizing a clock in the receiver to a clock in the transmitter, wherein said sequence of intermittent synchronization messages are in groups of synchronization messages, each group being separated from the next group by a first period of time and comprising a plurality of synchronization messages in series, each synchronization message in a group being separated from an adjacent synchronization message in that group by a second period of time, comprising:

control means arranged to control the operation of the receiver in dependence on the intermittent sequence as updated by received ones of the transmitted intermittent sequence of synchronization messages comprising control information indicative of a variation in the sequence of intermittent synchronization messages;

a clock for providing a time reference to the control means; and receiver and synchronization means responsive, when enabled, to a received synchronization message to indicate to the control means the reception of said synchronization message, wherein said control means is arranged to enable power conservation within the receiver for a period of time dependent upon the intermittent sequence, and any variation thereof, said period of time being such that power conservation is disabled to receive a synchronization message in each of the groups of the sequence,

wherein said control means is arranged to compare the expected time of arrival of a message with the actual time of arrival of the message as indicated to the control means by the reception and synchronization means, and to offset a time reference provided by the clock in dependence on said comparison; and wherein

control means is arranged to vary the sequence of intermittent messages by varying the first time period between the transmission of a first group of messages and a second successive group of messages by an amount such that the time of transmission of a first message in the second group after the time variation would have coincided with the expected time of transmission of a second message in the second group in the absence of the time variation.

119. (previously presented) An accessory for a mobile communications device comprising a receiver as claimed in claim 117.

120. (new) A transmitter, for transmitting an intermittent sequence of messages each of which is capable of synchronizing a clock in a receiver to a clock in the transmitter, wherein said sequential messages are in groups, each group being separated from the next group by a first period of time and comprising a plurality of messages in series, each of the plurality of messages in a group being separated from an adjacent message in that group by a second period of time, comprising:

transmission means for transmitting each of said sequential messages; and

control means arranged to provide, when there is a variation in the sequence of messages, control information, for transmission in at least one sequential message, that informs the at least one receiver of a variation in the sequence of messages, and thereby maintains, after the variation, the synchronization of the clock in the receiver to the clock in the transmitter, the control information including one or more parameters for informing a variation in one or more of the first period of time, the second period of time and the number of messages in a group; and wherein

said control means is arranged to vary the sequence of intermittent messages by varying the first time period between the transmission of a first group of messages and a second successive group of messages by an amount such that the time of transmission of a first message in the second group after the time variation would have coincided with the expected time of transmission of a second message in the second group in the absence of the time variation.